WORLD ECONOMIC FORUM

Playbook of Solutions to Mobilize Clean Energy Investment in the Global South

EXECUTIVE SUMMARY

OCTOBER 2024

Images: Getty Images

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Introduction

Combining policy measures, finance mechanisms and de-risking tools can create a supportive environment for clean energy financing in the Global South.

100
solutions
to increase clean energy capital in the Global South.

Unlocking capital for clean energy in emerging and developing economies (EMDEs) is one of the biggest challenges to achieving a secure, equitable and sustainable energy future aligned with global climate and development goals.

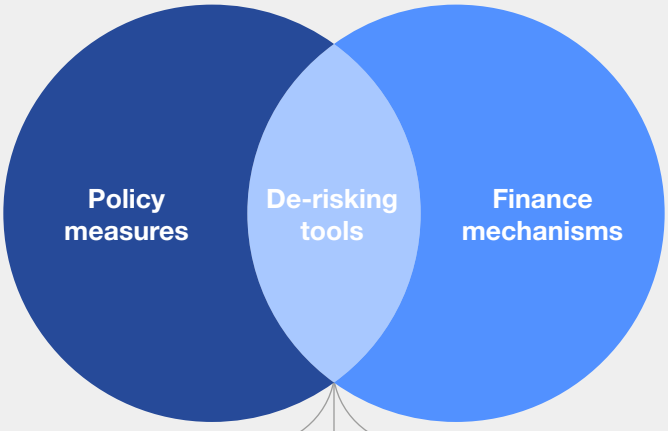
The energy transition will require investing trillions of dollars in efforts to deploy new clean energy capacity, increase energy efficiency and retire existing carbon-intensive energy that would otherwise lock in emissions for decades. Bridging this investment gap is an absolute necessity to ensure more sustainable, affordable, inclusive and secure energy systems globally.

Current investment levels, however, remain largely insufficient to match the scale and pace needed to finance those transformations. This is especially true in EMDEs, which, excluding China, account for two-thirds of the world's population while only receiving 15% of global clean energy investment.[1] It has been projected that to stay in line with the Paris Agreement, annual investment in clean energy in the Global South needs to be multiplied by 5-7, to reach at least $1.7 trillion annually by the early 2030s.[2] The vast majority of EMDEs lack the investment-grade credit rating to attract large institutional investors, or the depth of capital markets required for domestic and international financial players to invest.

An increase in clean energy finance is essential to driving sustainable economic growth, creating jobs and providing electricity access to the millions lacking it. Beyond those key imperatives, the world needs to grasp the growing importance that EMDEs will play in the global economy and the many opportunities that lie in these territories.

There is no "one-size-fits-all" solution to scaling clean energy investments in EMDEs. Instead, collective efforts are needed to coordinate policy interventions, de-risking tools and innovative financing mechanisms, the pillars that will allow investments to flow.

FIGURE 1 **Opportunities to create a conducive environment for clean energy finance in EMDEs**



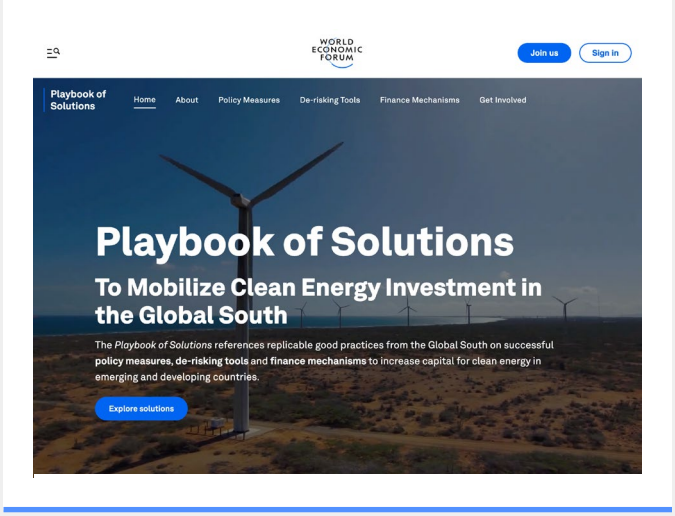
Policy measures reduce risks by targeting underlying barriers to clean energy investment and creating favourable conditions for capital to flow.

De-risking tools include policy instruments and finance mechanisms that help reduce, transfer or compensate risks for investors. They aim to achieve a risk-return profile that catalyses investments at scale.

Traditional and innovative finance mechanisms are fundamental to bridging the gap in clean energy investments in emerging and developing economies.

The *Playbook of Solutions* references 100 successful good practices from the Global South to increase capital for clean energy in EMDEs. Each solution description is accompanied by a real-life case study, selected for its replicability potential as well as the meaningful impact it had on unlocking clean energy finance in an EMDE context. In addition to detailing 100 solutions from more than 45 countries – and acknowledging that success often stems from a combination of strategies – the playbook also highlights four integrated national approaches and country platforms through a detailed analysis of Brazil, Chile, Egypt and India's success stories.

The playbook aims to inspire governments, financiers and energy players as they approach energy transition project financing in Global South markets and to inform relevant international processes such as the G20 Energy Transition Working Group, the Clean Energy Ministerial and COP (Conference of the Parties). It was established based on research and insights surfaced by the World Economic Forum's Network to Mobilize Investment for Clean Energy in the Global South, a coalition of more than 45 chief executive officers and ministers engaged in accelerating clean energy capital in EMDEs. While this document is intended as a high-level executive summary of key findings and exemplary illustrations, the entirety of the playbook content can be accessed via this interactive online platform.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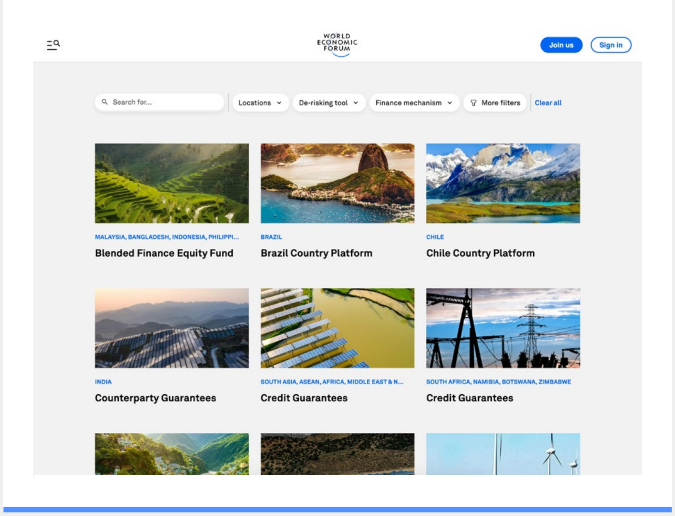
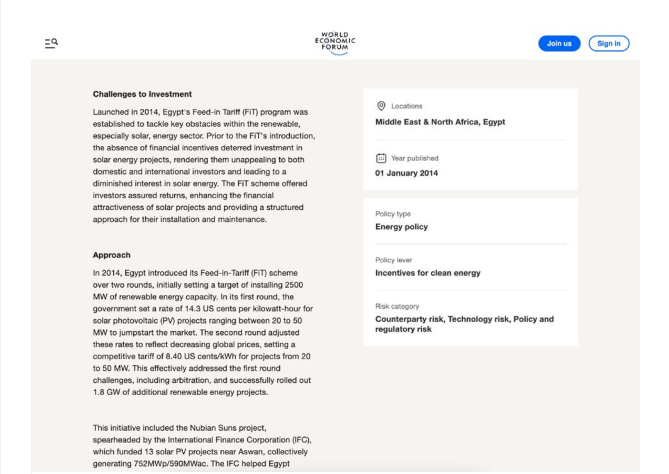
To Mobilize Clean Energy Investment in the Global South
The Playbook of Solutions references replicable good practices from the Global South on successful policy measures, de-risking tools and finance mechanisms to increase capital for clean energy in emerging and developing countries.
Explore solutions

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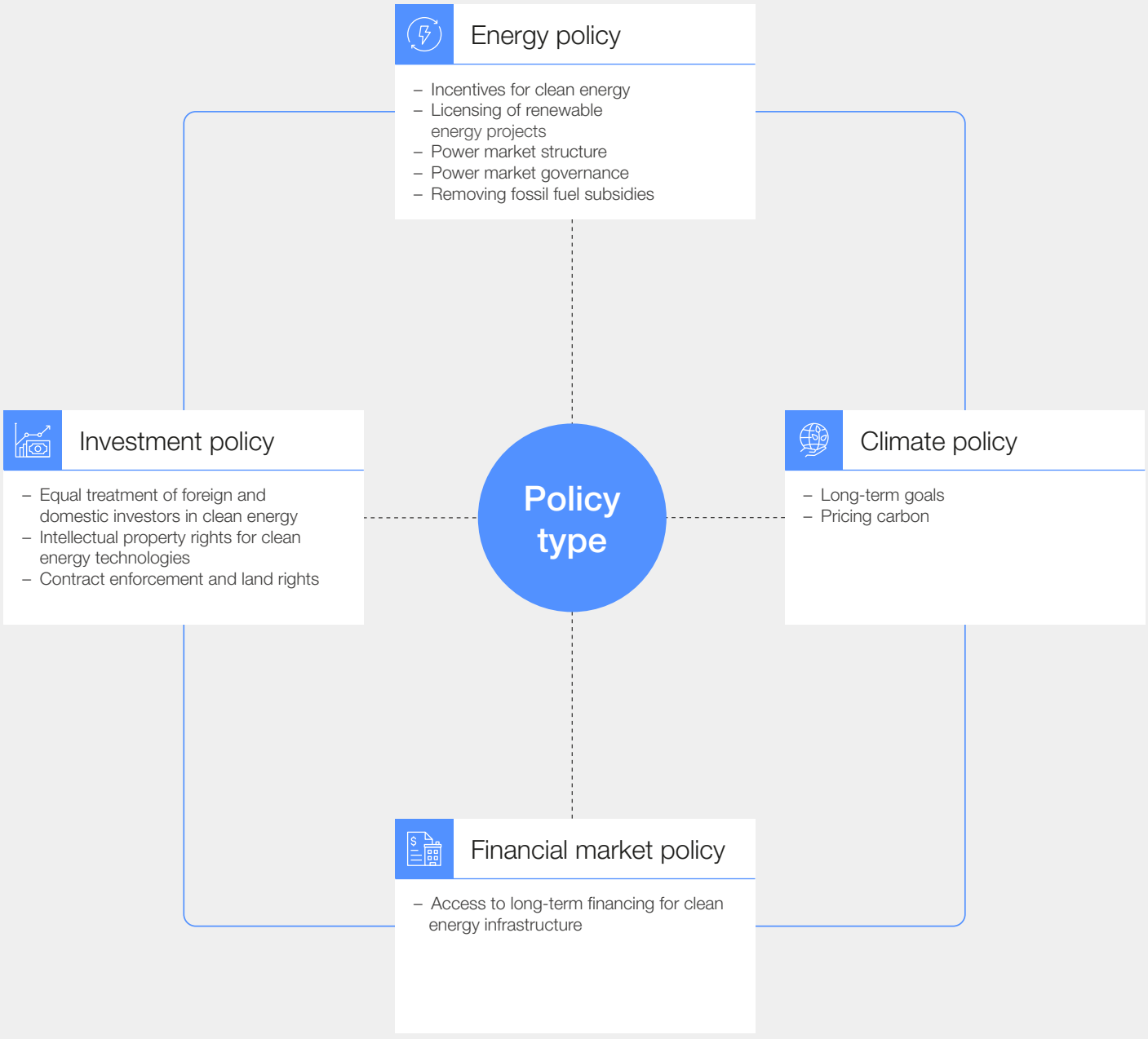
Challenges to Investment
Launched in 2014, Egypt's Feed-in Tariff (FiT) program was established to tackle key obstacles within the renewable, especially solar, energy sector. Prior to the FiT's introduction, the absence of financial incentives deterred investment in solar energy projects, rendering them unappealing to both domestic and international investors and leading to a diminished interest in solar energy. The FiT scheme offered investors assured returns, enhancing the financial attractiveness of solar projects and providing a structured approach for their installation and maintenance.
Approach
In 2014, Egypt introduced its Feed-in-Tariff (FiT) scheme over two rounds, initially setting a target of installing 2500 MW of renewable energy capacity. In its first round, the government set a rate of 14.3 US cents per kilowatt-hour for solar photovoltaic (PV) projects ranging between 20 to 50 MW to jumpstart the market. The second round adjusted these rates to reflect decreasing global prices, setting a competitive tariff of 8.40 US cents/kWh for projects from 20 to 50 MW. This effectively addressed the first round challenges, including arbitration, and successfully rolled out 1.8 GW of additional renewable energy projects.
This initiative included the Nubian Suns project, spearheaded by the International Finance Corporation (IFC), which funded 13 solar PV projects near Aswan, collectively generating 752MWp/590MWac. The IFC helped Egypt
Locations
Middle East & North Africa, Egypt
Year published
01 January 2014
Policy type
Energy policy
Policy lever
Incentives for clean energy
Risk category
Counterparty risk, Technology risk, Policy and regulatory risk

1 Policy measures

Policy measures are essential for creating the enabling environment needed for large-scale clean energy investments in EMDEs.

Policy and regulatory frameworks reduce risks by targeting underlying barriers to clean energy investment and creating favourable conditions for capital to flow. Policy and regulatory stability are of the utmost importance to breed investor confidence. Recognizing the breadth of interventions available and the fact that measures need to be tailored to national circumstances, the *Playbook of Solutions* references policy enablers across four policy types.

FIGURE 2 **Policy measures**


Energy policy
– Incentives for clean energy
– Licensing of renewable energy projects
– Power market structure
– Power market governance
– Removing fossil fuel subsidies
Investment policy
– Equal treatment of foreign and domestic investors in clean energy
– Intellectual property rights for clean energy technologies
– Contract enforcement and land rights
Policy type
Climate policy
– Long-term goals
– Pricing carbon
Financial market policy
– Access to long-term financing for clean energy infrastructure

1.1 Energy policy

Energy policy plays a vital role in creating an attractive environment for clean energy finance. Various policy levers are at policy-makers' disposal, including measures to enhance the power market, incentives to build out infrastructure and efficient licensing of new projects. Beyond accelerating their energy transition, these opportunities can help promote sustainable economic development, mitigate greenhouse gas emissions and enhance overall energy security.

Incentives for clean energy

Instruments that the government can put in place to help level the playing field between conventional energy and clean-energy-based power generation and promote investment in the latter, including:

- Feed-in tariffs (FIT)
- Feed-in-premiums
- Tenders and auctions
- Contract-for-difference schemes
- Tradeable green certificates (TGCs)
- Renewables tax relief
- Capital grants
- Subsidized investment loans and funds
- Accelerated depreciations
- Net metering regulations
- Technology standards

Licensing of renewable energy projects

Steps that the government can take to facilitate business licensing processes for clean energy projects, including:

- One-stop-shop for renewable energy permits
- Raising license threshold for small embedded generation

Power market structure

Policy instruments that help promote the effective separation of the power sector can encourage multiple actors to invest in power generation, transmission and distribution. They include:

- Separation of power sector/"unbundling"
- Power wheeling mechanisms
- Preferential access to grid for RE
- Openness of grid to private investment

Power market governance

Policy instruments surrounding market governance can help ensure the independence of the electricity market regulator as well as effective coordination and alignment between various institutions in the power market. These include:

- Creation of an electricity market regulator
- Grid code for new renewable energy technology
- National grid roadmap including intermittent renewable energy
- Geographical mapping of RE resources
- Opening the electricity generating industry to independent power producers (IPPs)

Removing fossil-fuel subsidies

Steps taken by the government to gradually phase out inefficient fossil-fuel subsidies, thus creating a strong signal for clean energy investors and levelling the playing field between conventional and clean energy. They include:

- Removal of fossil-fuel subsidies

1.2 Climate policy

Climate policy is a prerequisite for increasing investors' trust and confidence in clean energy projects. Long-term, credible climate commitments and goals help promote clean energy investment, while carbon pricing measures contribute to significantly improving the financing conditions and cost-effectiveness of clean energy investments.

Long-term goals

Steps taken by the government to set long-term greenhouse gas emission reduction objectives, renewable energy deployment targets as well as energy efficiency targets all contribute to clean energy investments. They include:

- Greenhouse gas emission reduction targets
- Targets for RE deployment
- National energy efficiency strategy
- Emission reporting schemes

Pricing carbon

Within available climate policy measures, carbon pricing stands as a pivotal instrument for governments to effectively mitigate emissions. A range of policy steps can be derived, such as:

- Emission trading schemes (ETS)
- Carbon taxes
- Voluntary carbon reporting

1.3 Financial market policy

Financial market policy is essential to creating a conducive investment landscape in EMDEs. Here, policy instruments targeting macroeconomic fundamentals, the expansion of capital markets, and the strengthening of governance are critical. These measures can enhance credit ratings, reduce capital costs and increase the domestic financial resources available.

Access to long-term financing for clean energy infrastructure

Steps that ensure foreign and domestic investors can access domestic long-term financing at an affordable rate are essential. They include:

- Sovereign guarantees
- National and multilateral development banks funding to investors
- Providing direct lending to renewable energy projects
- Access to international capital markets

1.4 Investment policy

Investment policy plays a massive role in promoting clean energy investments. At its core are instruments promoting equal treatment of foreign and domestic investors. Contract enforcement measures, as well as policy steps enabling stable and reliable access to land, are also key to alleviating the political, regulatory and financial risks commonly encountered in emerging and developing economies.

Equal treatment of foreign and domestic investors in clean energy

Restrictions on foreign direct investment (FDI) are likely to result in sub-optimal flows of investment for clean energy. Emphasis should be given to assessing the extent of foreign ownership restrictions in clean energy, carefully using local content requirements (LCRs), as well as ensuring capital repatriation for international investors:

- Lifting restrictions on FDI in the electricity sector and for clean energy technologies
- Careful use of LCRs
- Capital repatriation

Intellectual property rights for clean energy technologies

Policy measures taken by the government to protect intellectual property rights and facilitate patenting of innovations in clean energy, including:

- Setting up "fast-track" processes for patenting clean energy technologies

Contract enforcement and land rights

Measures guaranteeing that agreements between clean energy producers and their partners are honoured ensure the public availability of legal decisions, and simplify the procedures for registration, permitting and securing of land for clean energy projects. They include:

- Contract enforcement for clean energy products and their partners
- Publicly available judgements
- One-stop-shops for property registration
- Property registration institution coordination
- Electronic linkage of agencies for permitting processes

BOX 1 **Policy measures successfully implemented in the Global South**

The *Playbook of Solutions* features more than 40 concrete good practices for policy measures implemented by EMDEs. Each of the policy instruments mentioned above is put in the context of an EMDE country having successfully deployed it, establishing clear links between policy levers and their contribution to creating a conducive environment for clean energy finance. This repository of good practices aims to nurture inspiration for other EMDE nations as they work towards creating the right set of conditions for clean energy finance.

Discover more policy case studies.

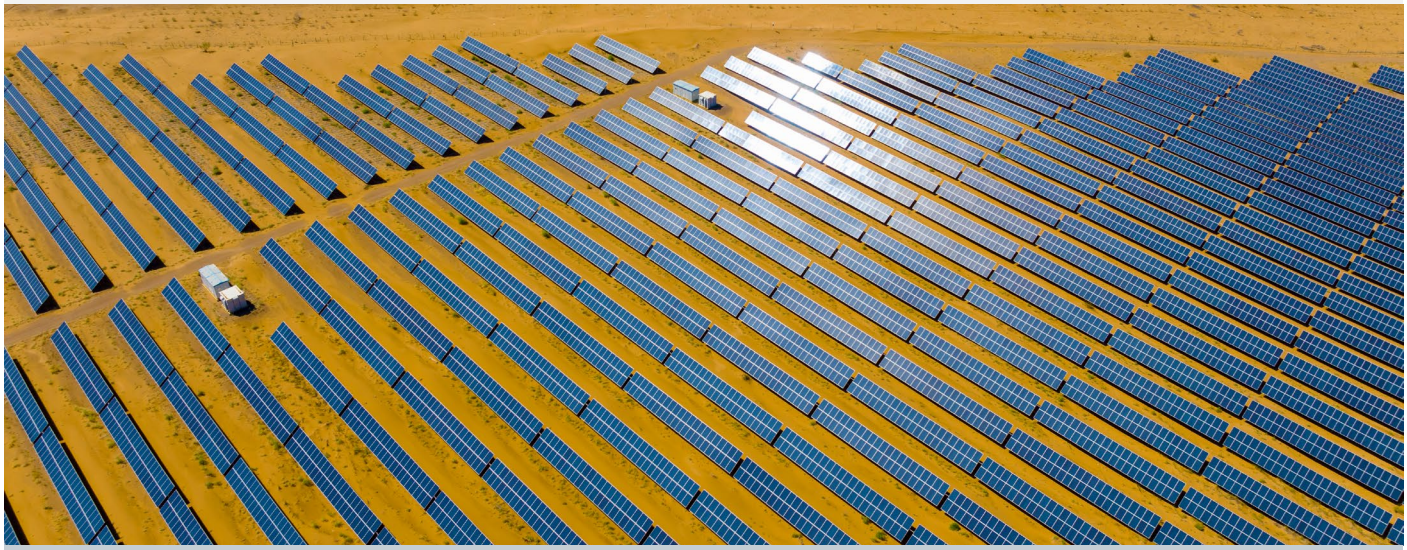
1.5 Integrated country platforms

Recognizing that success often arises from a blend of strategies, the *Playbook of Solutions* also emphasizes effective financing country platforms and integrated national approaches to understand how leading countries have successfully created the conditions for clean energy investment.

Egypt

Egypt has created an enabling environment for clean energy investment through a comprehensive approach using multiple levers. Clear deployment targets for RE, detailed by technology, were first outlined in the *2016 Integrated & Sustainable Energy Strategy for 2035*, further consolidated in the *2022 National Climate Change Strategy for Egypt*, and recently strengthened as part of the *National Determined Contribution* update, pushing for 42% renewable electricity generation by 2030. These plans have increased Egypt's attractiveness for clean energy investments. The 2014 Renewable Energy Law clarified the regulatory framework – including power purchase agreements (PPAs), feed-in-tariffs (FIT), preferential grid access for RE, and improved licensing and permitting – therefore substantially enhancing investors' confidence in the nation. Lastly, financial packages, such as the 2017 *Renewable Energy Financing Framework*, the $550 million national green bonds, and the $113 million debt swap with Germany were key in securing funding for the country's clean energy transition. Announced in 2022, Egypt's National Country Platform, the Nexus of Water, Food, and Energy (NWFE) will further channel $10 billion into Egypt's energy sector.

Explore complete case study.



Brazil

Brazil established a robust framework for renewable energy investment as early as the 1990s. The country pioneered renewable energy auctions and introduced a reverse auction system in 2009 to further lower costs as compared to FIT. Brazil's power market allows private sector participation in RE and transmission and distribution infrastructure. Governance steps ensured the electricity market regulator's independence and effective coordination. This further led to robust and consistent energy planning processes through the Energy Research Office (EPE), which enhanced market predictability and investment security. The Brazilian Development Bank (BNDES) played a pivotal role as the "national platform" facilitating blended finance for clean energy investment, while the Inter-American Development Bank partnered with the Ministry of Finance on a hedge currency facility. The 2012 Green Patents Program supported intellectual property rights and clean energy technology innovation.

Explore complete case study.

India

India's ambition surrounding clean energy has kept increasing since the early 1990s, culminating in the country's targets of adding an additional 300 gigawatts (GW) of renewables to its existing capacity between 2019 and 2030, which acted as a very strong signal to investors. Through integrated policies, robust planning, financial incentives and innovation, India has been striving to deliver affordable, secure and clean energy for all its citizens. The Greenhouse Gas Program, a voluntary industry-led initiative, established a monitoring framework to track corporate progress towards emissions reductions, while financial incentives and tax benefits – like the accelerated depreciation (AD), Inter State Transmission System (ISTS) waiver, etc. – strongly motivated investment in clean energy. The progressive Fossil Fuel Subsidy Swap initiated in 2013 has helped create a level playing field for fossil and RE to compete fairly for capital. At the same time, India's commitment to research and development (R&D) and technological development strengthened the viability and quality of RE projects and helped develop a strong local market for RE investment. A long-standing, comprehensive and integrated approach yielded fast adoption of clean energy in the country.

Explore complete case study.

Chile

Chile has developed a comprehensive legal framework to promote RE in its national energy mix. A pioneer on many fronts, Chile was among the first nations to set a national net-zero target. The country also spearheaded power sector liberalization with the 1982 General Law of Electric Services. Since then, the country took steps to facilitate grid access and exempt or limit transmission fees for RE producers, therefore enhancing the competitive conditions for clean energy projects. The government has taken action to steer investment towards RE: from annual RE quotas to RE market share mandates, assorted with innovative auctions. Efficient subsidy programmes coupled with long-term RE and grid planning have created the right environment for investors to confidently participate in the country's clean energy expansion. A long tradition of bilateral agreements (with Germany, Switzerland, the US, the EU and more) has provided conceptual and financial support for the development of renewable energy and methane capture programmes in sectors such as electromobility, waste management, energy efficiency or energy storage, and contributed to accelerate the decarbonization of Chile's energy matrix.

Explore complete case study.

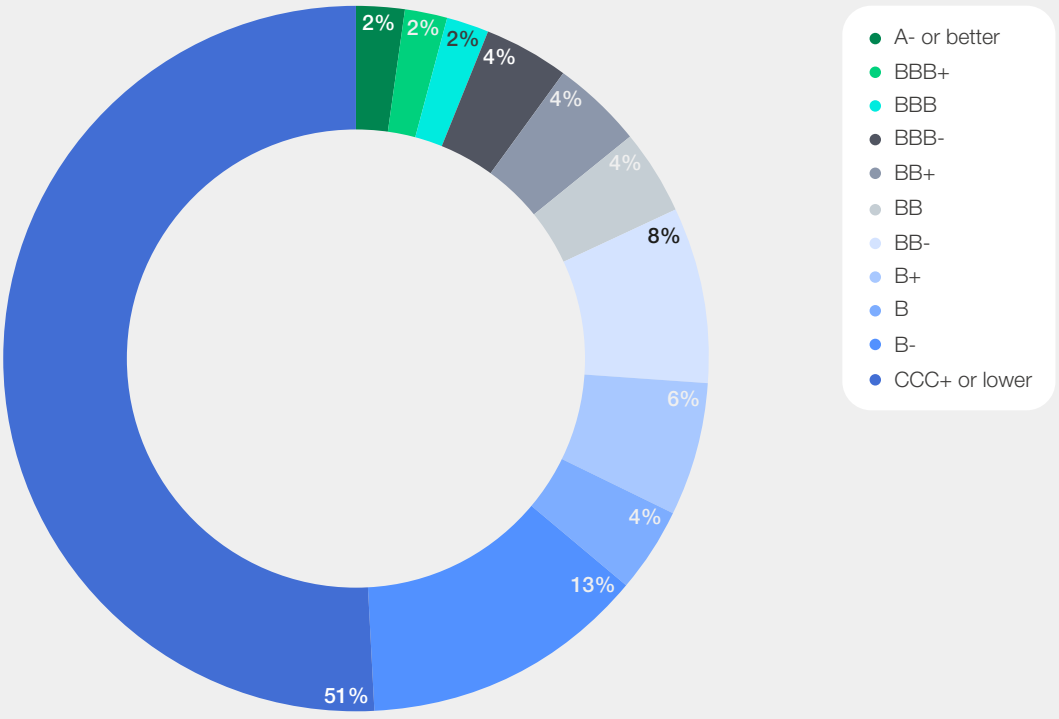
2 De-risking tools

De-risking tools help expand the range of capital sources and scale up investments in EMDEs.

In EMDEs, the level of risk tends to fall outside of what most private investors will deem acceptable. As outlined in Figure 3, 74% of the low-to-medium income economies[3] received a sovereign risk rating of B+ or lower – also referred to as "highly speculative" environments – from leading credit rating agencies such as Standard & Poor, Moody's and DBRS. In other words, de-risking approaches are crucial for attracting investment in clean energy in Global South nations, as the vast majority lie outside of the fiduciary and regulatory obligations of private sector investors.

De-risking tools include instruments and mechanisms that help reduce, transfer or compensate risks for investors. In an EMDE context, their primary goal is to catalyse finance – most importantly, private financial resources – by bringing risks to acceptable levels while enabling market-equivalent risk-adjusted returns.

FIGURE 3 **Credit risk ratings of countries eligible for official development assistance**



Source: Compiled by the World Economic Forum based on Standard & Poor, Moody's and DBRS' 2024 sovereign credit ratings.

BOX 2 **De-risking tools successfully used in EMDEs**

The *Playbook of Solutions* highlights more than 20 of the most effective de-risking approaches and tools pertinent to an EMDE context, some of which are outlined in the following sections. Each tool is accompanied by a case study demonstrating how the de-risking approach has been applied to concrete clean energy projects in EMDEs. This repository of good practices aims to nurture inspiration for financiers and clean energy developers as they work towards structuring projects in EMDEs.

Discover all de-risking tools.

2.1 Portfolio approaches

While de-risking can occur at the project level, portfolio solutions are widely recognized as the most effective solution to mobilize capital in EMDEs. The diversification they offer significantly enhances risk mitigation, providing robust strategies to address various types of risks. Grouping projects as part of portfolios – also referred to as platforms – allows for the attraction of more international players looking for geographical, resource and currency diversification. It also encourages improved financing terms by reducing the cost of capital.

International Finance Corporation's (IFC) Managed Co-Lending Portfolio Program

A great example of such an approach is the Managed Co-Lending Portfolio Program (MCPP), IFC's syndication platform for institutional investors that raised $16 billion between 2013 and 2021 from several sub-programmes. One such sub-programme was MCPP Infrastructure, launched in 2016. It used a portfolio strategy that bundled many projects, reduced risk and achieved scale with an excellent 9:1 ratio of private sector investment to catalytic capital.[4]

Aggregated RE procurement platforms

Aggregated RE procurement platforms can help lower risks and costs, and attract more qualified buyers.

The Clean Energy Investment Accelerator (CEIA) is a demand aggregation and procurement platform that unlocks access to finance by aggregating large commercial and industrial users for RE procurement.

2.2 Blended finance

Blended finance uses catalytic capital from public or philanthropic sources to increase private sector investment in sustainable development. Its aim is to mitigate specific investment risks and balance the risk-return profile of investments that would otherwise not have been commercially viable. In that regard, the role of public sector funding, in the form of either official development assistance (ODA) or through multilateral development banks (MDBs) and development finance institutions (DFIs) fund allocation, is critical. To truly play a catalytic role when it comes to private-sector mobilization, the involvement of multilateral institutions should be consciously targeted at producing viable investment opportunities that meet private-sector investor's fiduciary and regulatory obligations, as opposed to crowding out investment opportunities that could be deemed by private sector financiers as viable with no intervention. Recently, global leaders have raised concerns about the need to reform MDBs and DFIs, particularly in relation to integrating climate targets, as well as prioritizing the mobilization of catalytic capital to scale private sector participation. The MDB Reform Tracker was created to assess the progress of the reforms under five key strategic priorities: using capital more efficiently, expanding capital, adding global challenges to their mandates, mobilizing private finance, and making country engagements more efficient. Philanthropic funding is also emerging as an important instrument in de-risking, but its total size remains modest compared to governments and MDBs/DFIs.[5]

Convergence reported that the blended finance market reached a 5-year high in 2023, totalling $213 billion.[6] While experimentation with blended finance has happened over the last 15 years, two blended finance archetypes have emerged as particularly powerful and worth replicating in EMDEs.

Blended finance equity funds

These funds are structured with development funds in junior position and a waterfall distribution to increase internal rate of return (IRR) and reduce negative variance.

A good example is the Climate Finance Partnership, managed by BlackRock. The fund combines public, philanthropic and private capital from, respectively, the French (AFD), German (German Development Bank) and Japanese (Japan Bank for International Cooperation) governments, the Hewlett, Grantham and Quadrivium foundations, and BlackRock to mobilize large-scale institutional investment in EMDEs. A first tranche of $130 million of catalytic funds, supported by public and philanthropic foundations, has attracted $540 million in private investment, targeting projects in South-East Asia, Latin America and Africa.

Blended finance debt funds

These funds are structured with development funds in subordinate position (for instance acting as "first loss"), therefore reducing the probability of default and expected losses.

To be truly impactful, such structures need strong middle-tier mezzanine investors (e.g. DFIs or more "speculative" private investors) between junior donors providing concessional funding (i.e. development agencies) and senior debt provided by private investors.

Pentagreen Capital, HSBC and Temasek's blended finance debt fund, is a noteworthy example. Launched in 2022 with $150 million in initial capital, it aims to catalyse over $1 billion in loans within five years for sustainable infrastructure in South-East Asia. It combines technical assistance and blended finance debt investment to unlock capital for marginally bankable projects in renewable energy, clean transport, energy storage and water and waste management. Key strategic partners include the Asian Development Bank (ADB) and Clifford Capital Holdings, providing technical and financial expertise.

2.3 Guarantees and insurances

Guarantees and insurance-type de-risking tools are absolute enablers of capital in EMDEs, as they provide the necessary assurance to private sector players. They enhance investors' confidence by mitigating risks related to counterparty, technology, political instability, regulatory changes and sometimes also currency fluctuation, thus making investments more attractive. The following are some of the most common guarantees and insurance-type de-risking tools considered effective for de-risking projects in EMDEs.

Sovereign guarantees

Sovereign guarantees (otherwise known as government guarantees) are formal assurances provided by a national government to underwrite financial liabilities or obligations of a specific entity. They enhance investor confidence by mitigating risks related to counterparty, political instability, regulatory changes, and sometimes also currency fluctuation, thus making investments more attractive.

In its 2023 Energy Bounce Back (EBB) scheme, the Government of South Africa used a sovereign guarantee mechanism in the form of the National Treasury, guaranteeing 20% of initial losses on rooftop solar loans.

Political risk insurances

Political risk insurance (PRI) is a de-risking tool that helps mitigate risks arising from the adverse actions – or inactions – of governments (e.g. expropriation, currency inconvertibility and transfer restrictions, breach of contract), war, civil unrest and terrorism.

Public players, such as multilateral agencies or export credit agencies (ECAs) often offer PRI, MIGA (Multilateral Investment Guarantee Agency) being a prominent example of such. Private PRI providers such as commercial insurance players also exist.

Credit guarantees

Credit guarantees improve access to financing for high-risk projects by facilitating borrowers' market access, encouraging long-term funding and allowing for better financing terms.

In 2024, GuarantCo provided Africa GreenCo with an 8-year $27 million guarantee to back its payment obligations to the independent power producers (IPPs) it buys clean energy from. The innovativeness of this structure lied in the fact that, while a guarantee framework was agreed between Africa GreenCo and GuarantCo, guarantees would be issued directly to the IPPs, providing them and their lenders with the comfort to enter into contracts and build RE projects.

Export credit guarantees

Export credit guarantees (ECGs) are assurances to domestic companies against the risks associated with international export transactions and activities. They are provided by export credit agencies (ECAs), which are usually government-owned but can also be private companies operating on behalf of the government.

In 2020, the Swedish Export Credit Corporation (SEK) leveraged ECGs to finance seven photovoltaic parks, totalling a capacity of 370 megawatts (MW) in Angola.

Portfolio guarantees

Portfolio guarantees provide protection against credit losses for a portfolio of assets. Their structuring reduces the overall risk through diversification, which can also lead to lower transaction costs.

Examples include the Green Guarantee Company, launched in 2024 to mitigate investment risks and facilitate institutional investment in green bonds and loans in emerging and frontier markets.

Counterparty guarantees

A counterparty guarantee is a form of assurance provided by one party (the guarantor) to another party (the beneficiary) that it will perform the obligation of a third party if the third party fails to perform its obligation.

As part of Argentina's 2016 RenovAr initiative, the Fund for the Development of Renewable Energy (FODER) was used as counterparty guarantee guaranteeing payments from CAMMESA, the national utility.

Liquidity facilities

Financial instruments designed to provide short-term funding to cover temporary cash flow shortfalls ensuring the smooth operation and financial stability of a project.

Colombia's 2018 Renewable Energy and Energy Efficiency Program was assorted with a liquidity facility with up to $41 million and $40 million in guarantees from respectively the International Bank for Reconstruction and Development (IBRD) and the Clean Technology Fund (CTF).

Convertible instruments

Hybrid products offer the flexibility to convert into equity under pre-defined convertibility conditions, which are often linked to unforeseen or planned events. They reduce the investment risk compared to a pure equity investment, thus reducing the cost of financing.

In 2019, the Green Climate Fund committed to a $410 million multi-year support facility, with contributions from the World Bank, the Indonesian government and private sector developers, to finance geothermal development in Indonesia. In addition to concessional loans, repayable grants and subsidies, the package included convertible bonds allowing private-sector geothermal developers to mitigate exploration risks while providing an upside in the event of exploration success.

2.4 Refinancing

Refinancing entails changing or replacing existing lenders or the terms under which debt commitments have been established between the borrower and its lenders. In recent years, innovative refinancing schemes have surfaced in EMDEs and it is common for refinancing to intervene after solid operating performance has provided reassurance to investors as to overall levels of project risks. More and more financial institutions are willing to assume a higher degree of risk in the early stages of projects, only to refinance successful projects once they have reached commercial operations.

Refinancing

Refinancing allows borrowers to obtain better terms, often reducing the cost of their debt or changing their capital structure. These schemes are particularly relevant when favourable changes occur, allowing project owners to capitalize on reduced overall project risk over time.

In 2018, IDB invest provided an "A/B bond" financing structure to the La Jacinta solar farm, where IDB Invest provided a share of the refinancing for its own account (A loan) and a B loan issued by a special purpose vehicle, which issued a senior note to the institutional investor on the market (B bond). This refinancing structure helped the project to diversify its investor set, separate operation risk from construction phase financing and freed IDB Invest's balance sheet for further investments.

All-equity bridge financing

This is a temporary funding solution designed to cover a project's short-term expenses until it secures long-term financing. The funding is provided as equity rather than debt so as to avoid the very high interest rates typically carried by traditional debt bridge financing.

Africa Finance Corporation (AFC) led the development of a 60-MW wind farm in Djibouti thanks to an all-equity bridge financing scheme that was used to fast-track financial close (24 months). AFC later secured $60 million in debt to refinance the project once it had reached commercial operations, with lenders queuing to participate.

2.5 Project preparation

Project preparation activities take place prior to financial close and cover a wide range of activities such as establishing the enabling environment, defining project parameters, running feasibility assessments, financial structuring and ensuring community acceptance. By laying the necessary technical, financial, legal and governance foundations, the project preparation phase helps reduce risks occurring during the project cycle and increases the likelihood of attracting both public and private sector investment in subsequent project phases.

Technical assistance

Technical assistance (TA) is non-commercial support that includes advisory services, capacity-building programmes and the creation of business opportunities aimed at mitigating transaction risks.

The Desert to Power Regional Technical Assistance Project for the Sahel is a great example of a $6.3 million technical assistance project approved by the African Development Bank (AfDB) in 2023. It helped create an enabling environment for solar power projects and encouraged private sector investment in both the on-grid and mini-grid sectors in the Sahel region.

Project preparation facilities

Project preparation facilities (PPFs) are dedicated structures, dependent on MDBs, trust funds or donor programmes, that finance project preparation activities mainly through grants, risk capital or loans. They help ensure that projects meet necessary conditions such as technical feasibility, regulatory approvals, financial viability and community acceptance.

The Clean Energy Finance Facility for the Caribbean and Central America (CEFF-CCA) was established by the US Department of State, the US Agency for International Development (USAID), the US Trade and Development Agency (USTDA) and the Overseas Private Investment Corporation (OPIC). It aims to stimulate private sector investment in clean energy projects. CEFF-CCA serves as a powerful example of how early-stage project development grants can help promising but undercapitalized projects overcome key planning and feasibility challenges.

2.6 Currency risk mitigation

The uncertainty linked to volatile local currency and unfavourable currency exchange rate movements can impact interest rates and return outlooks and negatively affect investments in EMDEs. It can also increase the cost of clean energy for end customers. Currency risk mitigation is of the utmost importance in an EMDE context.

Currency risk hedging

When a project's currency risk is not operationally hedged (e.g. natural currency hedges, exchange rate indexed contracts), commercial hedging solutions can help reduce the exposure to currency exchange rate fluctuation risks. These include many types of financial products (e.g. futures, forwards, swaps) but higher risk and lower liquidity limit their availability in emerging or frontier markets, especially at the long tenures required for infrastructure projects.

The Currency Exchange Fund (TCX)'s mission is to reduce currency risk in developing countries. It developed solutions to bridge the currency risk gap, offering dedicated foreign exchange (FX) forwards and cross-currency swaps. The EasySolar case – which took place in 2021 in Sierra Leone – is a good example of projects using the cross-currency swaps offered by TCX.

Local currency financing

Local currency financing involves issuing debt in the currency of the borrower's income, thereby avoiding currency mismatches. It is an effective strategy to lower risks and increase projects' creditworthiness while also actively contributing to the development of local financial markets.

In 2024, the ADB and the Asian Infrastructure Investment Bank contributed in equal part to a loan agreement of 14.6 billion Indian rupees (about $176 million) for ENGIE to fund a 400-MW solar photovoltaic power plant in Gujarat.

2.7 Better transparency to increase investors' confidence

Increased transparency and detailed information about credit performance are noted as concrete non-financial tools that can help manage risks in EMDEs. In that regard, opening the Global Emerging Markets (GEM) database for public access has been advocated as an important way to improve investors' confidence and help close the gap between perceived and actual risk.

3 Finance mechanisms

Traditional and innovative finance mechanisms are fundamental to bridging the clean energy investment gap in EMDEs.

To harness the potential of clean energy in emerging markets, effective finance mechanisms are crucial. Public interventions and multilateral funds will not be sufficient to close investment gaps alone. A massive scale-up in the participation of domestic and international private financial institutions is required. Innovative financing solutions and pioneering investment structures can overcome the investment barriers that characterize EMDEs and support their transition to low-carbon energy sources. Private financiers rely on effective collaboration with project developers: once clean energy projects are more secure and predictable, innovative financing mechanisms can be deployed to increase the return on investments.

BOX 3 **Finance mechanisms succesfully deployed in EMDEs**

The *Playbook of Solutions* identifies innovative finance mechanisms with proven track records in EMDEs. To illustrate how these finance mechanisms have been best harnessed to support the development of clean energy projects and sustainable development, the playbook references a series of real-world case studies that have been applied with great success. This repository of good practices aims to nurture inspiration for financiers and clean energy developers as they work towards structuring projects in EMDEs.

Discover all finance mechanisms.

3.1 Equity financing

Equity investments are essential for financing clean energy projects in emerging and developing economies. By allowing investors to take ownership shares or stakes in clean energy projects, they provide long-term capital, help share risks, attract additional funding and bring valuable expertise, all of which are critical for overcoming barriers and driving the growth of clean energy sectors. Equity financing is also a very attractive financing mechanism in an EMDE context, as it does not include a repayment obligation, allowing companies to avoid the cost of debt.

Venture capital (VC) funds

Investors provide private equity capital to support the development of early-stage companies that are believed to have long-term growth potential. This mechanism is favoured for technological innovations and market entry.

Clime Capital is a Singapore-based VC fund manager with several climate-focused funds. It recently set up its second South-East Asia-focused clean energy fund, SEACEF II (South-East Asia Clean Energy Fund II). The fund raised $127 million in the first fundraising round, showing strong investor confidence and allowing it to start deploying funds.

Equity funds

Equity funds are investment vehicles that pool capital from institutional and accredited investors to invest in companies that are not listed on public stock exchanges.

Announced in 2023, the Alterra Fund is an example of a 30-billion-dollar equity climate fund coordinated by Lunate, and involving BlackRock, Brookfield and TPG. It aims to invest $2.5 billion by the end of the decade, focusing on emerging markets and less-developed economies.

3.2 Debt financing

Debt financing occurs when an entity (public or private) raises money by selling debt instruments to investors. This method involves borrowing capital, with the obligation to repay the principal amount along with interest over a specified period. It is pivotal for funding large-scale clean energy projects in emerging economies, allowing developers to use debt for infrastructure expansion while retaining ownership and control of the projects.

Concessional loans

Concessional loans have softer terms (e.g. lower interest rates, extended repayment periods, income-contingent repayment) than market loans and are typically offered by institutions such as development banks, multilateral funds, philanthropies and governments. They generate increased access to capital, enhanced project viability, market development and sustainable development.

The Government of Rwanda signed a €229.20 million funding agreement with the AfDB to support the country's programme to improve electricity supply and expand access to electricity: Scaling Up Electricity Access Program Phase II (SEAP II). The operation involves a €165.59-million loan from AfDB and €63.61 million from the African Development Fund, the concessional arm of the bank group.

Revolving credit facilities

Revolving credit facilities (RCF) are flexible financing arrangements provided by financial institutions that allow borrowers to draw, repay and redraw funds up to a specified credit limit as needed over the term of the agreement. They provide the necessary flexibility, liquidity and financial stability to borrowers.

In 2024, the AfDB approved the financing of the Eastern Ethiopia Electricity Grid Reinforcement Project and provided access to its revolving fund to finance its share of eligible operating expenses and give the developer flexibility in project implementation.

Securitization

Securitization is a financial process in which various types of debt (such as loans, leases or receivables) are pooled together and repackaged into interest-bearing securities and then sold to investors. Cash flows from the underlying assets are used to pay interest and principal to the investors. Transforming illiquid assets into marketable securities unlocks capital, distributes risk and attracts diverse investment.

The Eastern and Southern African Trade and Development Bank (TDB) participated in a $130-million sustainable securitization transaction established by Sun King and Citi. The transaction used Sun King's existing and future Kenyan customers' payments for solar products to raise funding for further growth and expansion.

Microfinance loans

Microfinance loans are small loans provided to individuals or small businesses that do not have access to traditional banking services. Typically offered by microfinance institutions (MFIs), these aim to support entrepreneurial activities, alleviate poverty and promote financial inclusion.

In 2021, the SAJIDA Foundation raised Bangladesh's first green bond ($10 million) to provide microfinance loans to farmers and low-income families. It reiterated the issuance of a second green bond in 2023, this time raising around $20 million.

Subordinated/mezzanine financing

Subordinated or mezzanine financing is a hybrid form of financing that combines elements of debt and equity. It ranks below senior debt but above equity in terms of claim priority on assets and earnings. Mezzanine financing often involves higher interest rates and provides lenders with equity-like options, such as warrants or conversion rights, to compensate for the higher risk.

In 2023, Pentagreen Capital's first transaction involved a $100 million mezzanine construction green loan facility to finance six individual solar projects in the Philippines for a gross capacity of 490 MW.

3.3 Bonds

Bonds are fixed-income securities issued by entities such as governments, municipalities, corporations or international organizations to raise capital. When investors purchase bonds, they are effectively lending money to the issuer in exchange for periodic interest payments (coupons) and the return of the bond's face value at maturity. Bonds are critical, yet, underutilized financing mechanisms for clean energy projects in emerging markets. By providing substantial capital, attracting diverse investors, lowering the cost of capital and promoting sustainable development, bonds can advance the clean energy transition and support economic growth in these regions.

Green bonds

Green bonds are designed to finance environmentally friendly projects. There are four commonly recognized types of green bonds: green use of proceeds bonds, revenue bonds, green project bonds and green securitized bonds.[7]

The J.P. Morgan Development Finance Institution is the innovative DFI arm of J.P. Morgan, established in 2020 to mobilize finance in support of the United Nations' Sustainable Development Goals (SDGs) in emerging economies. In 2023, it acted as Joint Global Coordinator, Joint Bookrunner and DFSA (Dubai Financial Services Authority) on ReNew's $400 million secured green bond.

Sustainability linked bonds (SLBs)

SLBs are fixed-income securities where the bond's financial and/or structural characteristics are tied to the issuer's achievement of a combination of environmental and social performance targets.

Togo's Ecobank Transnational received an award for Outstanding Leadership in Sustainable Bonds for successfully raising $350 million tier 2 sustainability eurobond notes in June 2021, the first such issuance by a financial institution in Sub-Saharan Africa.

Green sukuk

Sukuk are Islamic financial instruments that comply with Islamic law (Sharia). Green sukuk follow similar principles but are specifically used to fund environmentally friendly projects, aligning with Sharia-compliant guidelines.

The Malaysia Green Finance Project facilitated the development of the green sukuk market in Malaysia, which led to the launch of the first green sukuk in the world. The first green sukuk, raised MYR 250 million (Malaysian ringgit) ($59 million) to finance a 50 MW solar photovoltaic power plant in Sabah, Malaysia.

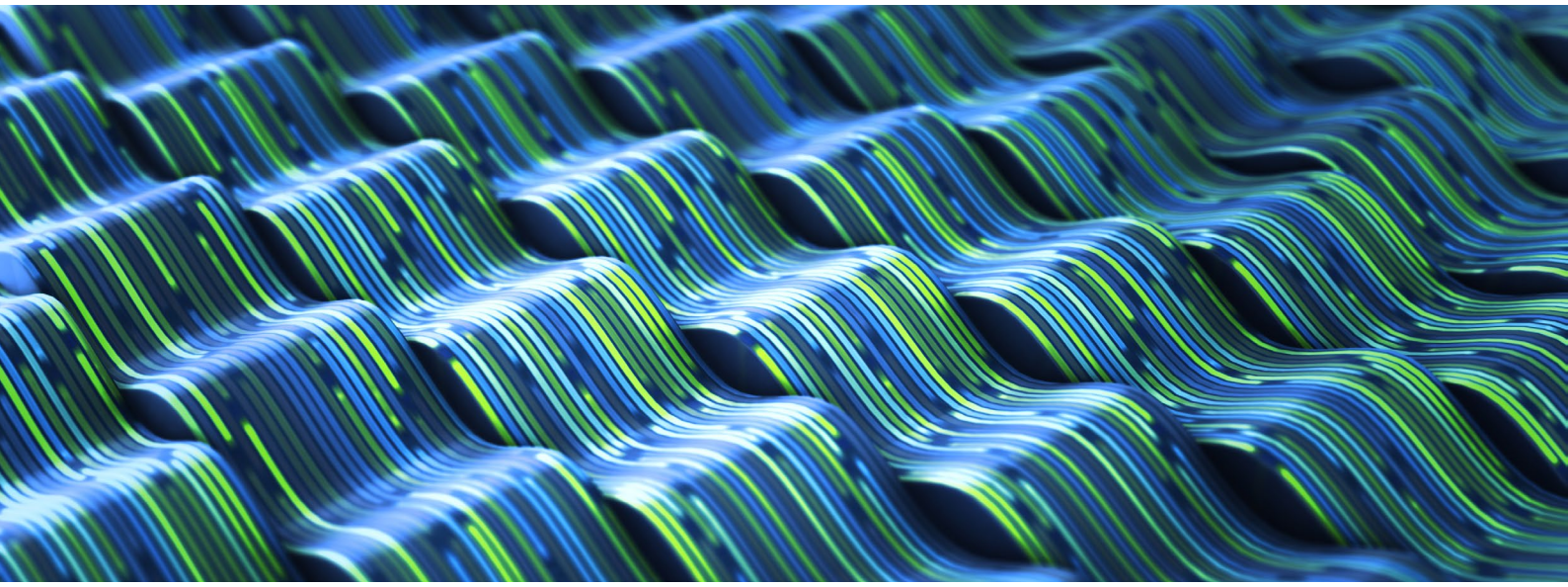
3.4 Debt swaps

Debt swaps refer to financial arrangements where a sovereign state or entity replaces a portion of its debt with a commitment to perform certain environmental actions, typically related to climate change mitigation or adaptation. This concept is gaining traction, with several Global South countries executing such swaps to achieve debt relief and create fiscal space for climate action. Swaps can be bilateral, tripartite (with the sovereign buying back its bonds from private investors to retire them), or multilateral (with international financial institutions).

Bilateral debt swaps

Bilateral swaps are negotiated directly with one or more official creditors. They can help address the dual issues of climate vulnerability and debt distress.

In 2022, Egypt signed a €54-million debt swap agreement with the German Development Bank (KfW), on behalf of the German Federal Ministry for Economic Cooperation and Development (BMZ) to finance Egypt's transition to green energy.



3.5 Energy service agreements

Energy service agreements (ESAs) are contracts where a service provider agrees to deliver specific energy services – such as energy efficiency improvements or renewable energy solutions – at predetermined performance levels. ESAs involve a financing arrangement where a third party provides the upfront capital for clean energy projects, and the client pays for the energy services over time. The service provider is typically paid based on the energy savings or performance achieved rather than upfront costs. This arrangement shifts the financial risk and responsibility for energy performance from the client to the service provider.

Pay-as-you-save (PAYS)

Under this scheme, the costs of energy efficiency improvements are repaid through savings generated from reduced energy bills.

Aspiration Energy finances its solar energy installations through a monthly performance-based energy charge model – a PAYS system. The company delivers solar hot water heating for industrial processes based on an "energy as a service model", requiring no initial capital expenditure.

Pay-as-you-go (PAYG)

A game-changing credit system that removes the initial financial barrier to clean energy access by allowing consumers to make a series of modest payments to purchase time units of electricity instead of paying upfront for the entire system.

The Azuri PayGo Energy initiative proposed a PAYG service to provide access to clean energy in Sub-Saharan Africa by combining solar and mobile technology. The initiative helped avoid 3,504 tonnes of CO_2 emissions, and benefitted hundreds of thousands of people.

3.6 Purchase agreements

PPAs allow corporate buyers to commit to purchasing a specified volume of electricity over a predetermined period, often spanning several years. The contract stipulates a fixed price or a predefined escalation rate, offering the offtaker long-term confidence while the buyer enjoys cost stability and potential savings relative to conventional utility rates. In an EMDE context, PPAs help hedge against energy price volatility while supporting sustainable energy initiatives.

Corporate power purchase agreements (CPPA)

CPPAs can be "physical", when green electrons are either delivered on-site to the buyer of transmitted through the grid to an off-site facility, or "virtual", when the PPA is set as a financial instrument that does not involve the physical flow of electricity to the buyer, but instead, its sale on the wholesale market.

In 2021, Amazon Web Services (AWS) division entered a 210 MW CPPA with Indonesia's state-owned utility PLN (Perusahaan Listrik Negara) to source power from four solar projects on Bali and Java islands. This was the first offsite CPPA in Indonesia.

3.7 Carbon financing

Carbon financing provides a mechanism for supporting clean energy projects in emerging economies by generating additional revenue through the sale of carbon credits, attracting investment, enhancing project viability, supporting climate goals and contributing to sustainable development. This financial approach helps overcome funding barriers and accelerates the deployment of renewable energy solutions.

Carbon credits finance scheme

Allow projects to earn and sell carbon credits for reducing greenhouse gas emissions, providing additional revenue that can help fund clean energy initiatives.

By adding a third (35 MW) generator to an existing geothermal plant, the Olkaria II Unit 3 Geothermal Project is expanding Kenya's renewable energy capacity and contributing about 276 GW hours (GWh) annually to greening the national grid. This geothermal expansion project is earning carbon credits under the clean development mechanism (CDM).

Clean development mechanism (CDM)

A CDM, under the Kyoto Protocol (expired in 2020), enabled developed countries to invest in emission-reducing projects in developing nations and receive certified emission reduction credits in return. This mechanism helped finance clean energy projects in emerging economies by providing access to international funds and market incentives.

Thanks to CDMs, the Biomass Energy Conservation Programme in Malawi funded a way to reduce particles emitted in the air from stoves and cut down on firewood consumption.

Carbon reduction bonus

A financial incentive to reward the reduction of carbon emissions. The incentive can be provided via a discount on the interest rate of a loan or through a credit that can be sold on a carbon market.

ENGIE received a $125 million package, including $74 million senior loan from IDB Invest, a $15-million concessional loan from Climate Investment Fund's CTF, and $36 million from funds managed by IDB Group to build, operate and maintain a 162-MW wind farm in Chile, while retiring two coal power units earlier than planned. The carbon reduction bonus took the form of a reduction in interest commensurate to meeting early coal retirement targets.

Conclusion

Unlocking capital for clean energy in EMDEs is one of the biggest challenges to achieving a secure, equitable and sustainable energy future. It is an imperative priority for governments, corporates and financiers alike as a crucial step not only towards a greener future but also as an important key to unlocking economic development and growth in EMDEs.

EMDEs stand at a critical juncture. Concessional funding and ODA have stagnated since 2018. High debt servicing burdens limit the resources available to low- and middle-income countries, and debt distress is stifling opportunities for growth. Rising geopolitical uncertainty is impacting growth projections and increasing volatility.

Against this backdrop, continued and enhanced collaboration between the three key stakeholder groups able to change the course of clean energy investments in EMDEs – governments, MDBs/DFIs and the private sector – is critical. In fact, no individual actor can do it alone. Governments can take policy and regulatory measures that create enabling environments for investors, improving the business case for clean energy projects. They can also set clear goals to catalyse action towards the transition in the Global South. Through strategic reforms, MDBs and DFIs can act as the bridge between concessionary capital and private funds, playing the catalytic role needed to achieve the scale and speed required. Private-sector financiers and investors, through innovative de-risking approaches and financial structuring, may increase their ability to fund the most important projects that can lead the way to greener and more sustainable economic growth.

It is the combination of policy action, de-risking tools and innovative financing mechanisms that will unlock the trillions needed in the Global South. Published as a direct contribution to the 2024 G20 Energy Transition Working Group, the *Playbook of Solutions* serves as an important instrument at the fingertips of policy-makers, multilateral institutions and private sector players to prioritize action by reflecting on the best practices and success stories summarized in this unique compendium of case studies. Based on input from a community of more than 90 practitioners, the playbook highlights the most important and successful interventions across the trifecta of solutions. It focuses on two elements: replicability of the model across different geographies or sectors as well as additionality, or the amount of private commercial capital that can be mobilized. While not intended as an exhaustive list of transactions in EMDEs, it is an important tool to showcase success stories and facilitate their replication in a Global South context.

As a continuation of this effort, the World Economic Forum's initiative on Mobilizing Investment for Clean Energy in EMDEs (MICEE) will work to elevate these best practices and identify further lighthouse projects that could be piloted to make the clean energy agenda a reality in the Global South.

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Endnotes

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